

The rejection of Claims 7-9, 12-15 and 18-24 under 35 U.S.C. § 102(b) as being anticipated by Chari et al. (U.S. Pat. No. 4,278,905) is respectfully traversed.

Chari et al. describe stator bars 36, FIG. 2, supported in the air-gap between a yoke 32 and the rotor 6 by a plurality of non-conductive, glass-reinforced-fiber, supporting teeth 51. The teeth are interspaced between the stator bars 36 and are rigidly attached to the yoke 32 of the generator. Each tooth has side walls, a mortise end 53 and a tenon end 55. The tenon end is received in a slot 57 in the yoke and is anchored in place by a plurality of tapered wedges 58. The tenon end 55 and the slot 57 form a dovetail joint. (col. 4, lines 46-55) Chari et al. further describe that the inner facing surfaces of the mortise ends 53, FIG. 2, are engaged by three wedges 60, 61 and 62. The three wedges slidably engage each other and two of the teeth to form a dovetail joint. The interfaces between the wedges 60, 61 and 62 are serrated so that radial motion of the wedges is prevented. When the wedges are driven into place, they pre-load the teeth 51 in compression by forcing the mortise end 53 of each tooth outward. This pre-loading of all the teeth forms a circular supporting arch around the rotor 6. The wedges lock the stator bars 36 together into a single circumferential unit. The wedges also prevent the tenon ends 55 of the teeth from being bent in the slots 57 like cantilevers when a torque is applied to the stator bars 36. (col. 5, lines 1-17).

Claim 7 recites a method for fabricating a stator with non-magnetic teeth, the stator including a non-magnetic tooth back portion including a plurality of non-magnetic teeth and a back portion, the non-magnetic teeth unitary with each other and with the back portion. The method includes the steps of "fabricating a back iron; and attaching the non-magnetic tooth back portion to the back iron". Chari et al. neither describes nor suggests a method for fabricating a stator with non-magnetic teeth, the stator including a non-magnetic tooth back portion including a plurality of non-magnetic teeth and a back portion, the non-magnetic teeth unitary with each other and with the back portion, including the steps of fabricating a back iron and attaching the non-magnetic tooth back portion to the back iron. Rather, Chari et al. describe stator bars supported in the air-gap between a yoke and the rotor by a plurality of non-conductive, glass-reinforced-fiber, supporting teeth, interspaced between the stator bars

and rigidly attached to the yoke of the generator. For the reasons set forth above, Claim 7 is submitted to be patentable over Chari et al.

Claims 8 and 9 depend, directly or indirectly, from independent Claim 7. When the recitations of Claims 8 and 9 are considered in combination with the recitations of Claim 7, Applicants submit that dependent Claims 8 and 9 likewise are patentable over Chari et al.

Claim 12 recites a stator comprising "a back iron; and a plurality of non-magnetic teeth unitary with each other and with a back portion, said back portion mounted on said back iron". Chari et al. do not describe or suggest a stator including a back iron, and a plurality of non-magnetic teeth unitary with each other and with a back portion. Rather, Chari et al. describe stator bars supported in the air-gap between a yoke and the rotor by a plurality of non-conductive, glass-reinforced-fiber, supporting teeth, interspaced between the stator bars and rigidly attached to the yoke of the generator. For the reasons set forth above, Claim 12 is submitted to be patentable over Chari et al.

Claims 13-15 depend, directly or indirectly, from independent Claim 12. When the recitations of Claims 13-15 are considered in combination with the recitations of Claim 12, Applicants submit that dependent Claims 13-15 likewise are patentable over Chari et al.

Claim 18 recites a dynamoelectric machine including "a housing; a stator comprising a bore therethrough mounted in said housing, said stator comprising a back iron and a plurality of non-magnetic teeth unitary with each other and with a back portion, said back portion mounted to said back iron; a plurality of armature windings mounted on said teeth; and a rotor rotatably mounted in said bore, said rotor comprising a plurality of field windings". Chari et al. do not describe nor suggest a stator including a back iron and a plurality of non-magnetic teeth unitary with each other and with a back portion. Rather, Chari et al. describe stator bars supported in the air-gap between a yoke and the rotor by a plurality of non-conductive, glass-reinforced-fiber, supporting teeth, interspaced between the stator bars and rigidly attached to the yoke of the generator. For the reasons set forth above, Claim 18 is submitted to be patentable over Chari et al.

Claims 19-24 depend from independent Claim 18. When the recitations of Claims 19-24 are considered in combination with the recitations of Claim 18, Applicants submit that dependent Claims 19-24 likewise are patentable over Chari et al.

For the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 7-9, 12-15, and 18-24 be withdrawn.

The rejection of Claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Chari et al. (U.S. Pat. No. 4,278,905) in view of Tesar (U.S. Pat. No. 5,355,743) and Lloyd et al. (U.S. Pat. No. 5,177,054) is respectfully traversed.

Claim 5 is cancelled. For the reasons set forth above, Applicants respectfully request that the Section 103(a) rejection of Claim 5 be withdrawn.

The rejection of Claim 10 under 35 U.S.C. § 103(a) as being unpatentable over Chari et al. (U.S. Pat. No. 4,278,905) in view of Tesar (U.S. Pat. No. 5,355,743) is respectfully traversed.

Chari et al. is described above. Tesar describes an actuator module 50 including a Ferguson epicyclic gear train formed by first base gear 3 detachably connected to robot member 1, second base gear 5 detachably connected to robot member 2, and planet gear carrier 7 with a plurality of planet gears 14 rotatably mounted therein, with first and second base gears and planet gear carrier being horizontally disposed along a central rotational axis 13 and adapted to rotate about axis. (Col 4, lines 52-61). Planet gear carrier 7 comprises an annular body forming a substantially cylindrical interior space. Planet gears 14 carried by planet gear carrier 7 mesh with first base gear 3 and second base gear 5. (Col. 5, lines 3-6).

Neither Chari et al. nor Tesar alone or in combination, describe or suggest the claimed combination. Specifically, Claim 10 depends from Claim 7, which recites a method for fabricating a stator with non-magnetic teeth, the stator including a non-magnetic tooth back portion including a plurality of non-magnetic teeth and a back portion, the non-magnetic teeth unitary with each other and with the back portion. The method including the steps of

"fabricating a back iron; and attaching the non-magnetic tooth back portion to the back iron". Neither Chari et al. nor Tesar, alone or in combination, describe or suggest a method for fabricating a stator with non-magnetic teeth, the stator including a non-magnetic tooth back portion including a plurality of non-magnetic teeth and a back portion, the non-magnetic teeth unitary with each other and with the back portion, including the steps of fabricating a back iron and attaching the non-magnetic tooth back portion to the back iron. Rather, Chari et al. describe stator bars supported in the air-gap between a yoke and the rotor by a plurality of non-conductive, glass-reinforced-fiber, supporting teeth, interspaced between the stator bars and rigidly attached to the yoke of the generator, and Tesar describes a an actuator module including a Ferguson epicyclic gear train formed by a plurality of gears connected to a robot member.

Applicants respectfully submit that the Section 103(a) rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. In addition, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991).

In the present case, neither a suggestion or motivation to combine the prior art disclosures nor any reasonable expectation of success has been shown.

The present Section 103(a) rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Chari et al. is cited for its teaching of stator bars supported in an air-gap between a yoke and the rotor by a plurality of non-conductive, glass-reinforced-fiber, supporting teeth, each tooth having side walls, a mortise end and a tenon end, with the tenon end received in a slot in the yoke and anchored in place by a plurality of tapered wedges forming a dovetail joint, and Tesar is cited for an actuator module including a Ferguson epicyclic gear train formed by first base gear detachably connected to robot member, second base gear detachably connected to robot member, and planet gear carrier with a plurality of planet gears rotatably mounted therein. Since there is no teaching nor suggestion in the cited art for the combination suggested by the Examiner, the Section 103(a) rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103(a) rejection be withdrawn.

For the reasons set forth above, Applicants respectfully request that the Section 103(a) rejection of Claim 10 be withdrawn.

The rejection of Claims 16 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Chari et al. (U.S. Pat. No. 4,278,905) in view of Roger (U.S. Pat. No. 4,375,043) is respectfully traversed.

Chari et al. are described above. Roger describes a system in which the bodies of teeth protrude radially inwards from the inside surface 4 of the magnetic circuit of the stator of a power alternator. The teeth are provided with radial wedges 22 and 24 which are longitudinally driven in and which are disposed between the large bases of a feet 18 of the teeth 14 and the bottoms 10 of the slots 6 in which the feet are engaged, to push the feet radially inwards and thus to keep the feet tangentially compressed by pressing them

permanently against the side surfaces of the slots. Further, Roger describes that there are two such wedges per tooth so as to provide uniform radial pressure, namely, an outer wedge 22 which cooperates with an inner wedge 24 (see FIG. 2). (col. 3, lines 36-48).

Claim 16 depends from Claim 12, which recites "a stator comprising a back iron; and a plurality of non-magnetic teeth unitary with each other and a back portion, said back portion mounted on said back iron". Neither Chari et al. nor Roger, alone or in combination, describe or suggest a stator as recited in Claim 12 wherein a plurality of non-magnetic teeth are unitary with each other and a back portion, and the back portion is mounted on the back iron. Rather, Chari et al. describe stator bars supported in an air-gap between a yoke and the rotor by a plurality of non-conductive, glass-reinforced-fiber, supporting teeth, each tooth having side walls, a mortise end and a tenon end, with the tenon end received in a slot in the yoke and anchored in place by a plurality of tapered wedges forming a dovetail joint, and Roger describes a system in which the teeth are provided with radial wedges which are longitudinally driven in and which are disposed between the large bases of the feet of the teeth and the bottoms of the slots in which the feet are engaged, to push the feet radially inwards and thus to keep the feet tangentially compressed by pressing them permanently against the side surfaces of the slots. Further, Roger describes that there are two such wedges per tooth so as to provide uniform radial pressure. For the reasons set forth above, Claim 12 is submitted to be patentable over Chari et al. in view of Roger.

Claim 16 depends from Claim 12. When the recitations of Claim 16 are considered in combination with the recitations of Claim 12, Applicants submit that dependent Claim 16 likewise is patentable over Chari et al. in view of Roger.

Claim 26 depends from Claim 18, which recites a dynamoelectric machine comprising "a housing; a stator comprising a bore therethrough mounted in said housing, said stator comprising a back iron and a plurality of non-magnetic teeth unitary with each other and a back portion, said back portion mounted to said back iron; a plurality of armature windings mounted on said teeth; and a rotor rotatably mounted in said bore, said rotor comprising a plurality of field windings". Neither Chari et al. nor Roger, alone or in

combination, describe or suggest a stator including a back iron and a plurality of non-magnetic teeth unitary with each other and a back portion, wherein the back portion is mounted to the back iron. Rather, Chari et al. describe stator bars supported in an air-gap between a yoke and the rotor by a plurality of non-conductive, glass-reinforced-fiber, supporting teeth, each tooth having side walls, a mortise end and a tenon end, with the tenon end received in a slot in the yoke and anchored in place by a plurality of tapered wedges forming a dovetail joint. Roger describes a system in which the teeth are provided with radial wedges which are longitudinally driven in and which are disposed between the large bases of the feet of the teeth and the bottoms of the slots in which the feet are engaged, to push the feet radially inwards and thus to keep the feet tangentially compressed by pressing them permanently against the side surfaces of the slots. Further, Roger describes that there are two such wedges per tooth so as to provide uniform radial pressure. For the reasons set forth above, Claim 18 is submitted to be patentable over Chari et al. in view of Roger.

Claim 26 depends from Claim 18. When the recitations of Claim 26 are considered in combination with the recitations of Claim 18, Applicants submit that dependent Claim 26 likewise is patentable over Chari et al. in view of Roger.

Applicants respectfully submit that the Section 103(a) rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. In addition, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures nor any reasonable expectation of success has been shown.

The present Section 103 rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Chari et al. is cited for its teaching of stator bars supported in an air-gap between a yoke and the rotor by a plurality of non-conductive, glass-reinforced-fiber, supporting teeth, each tooth having side walls, a mortise end and a tenon end, with the tenon end received in a slot in the yoke and anchored in place by a plurality of tapered wedges forming a dovetail joint, and Roger is cited for its teaching of a system in which the teeth are provided with radial wedges which are longitudinally driven in and which are disposed between the large bases of the feet of the teeth and the bottoms of the slots in which the feet are engaged, to push the feet radially inwards and thus to keep the feet tangentially compressed by pressing them permanently against the side surfaces of the slots. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103(a) rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103(a) rejection be withdrawn.

For the reasons set forth above, Applicants respectfully request that the rejection of Claims 16 and 26 under Section 103(a) as being unpatentable over Chari et al. in view of Roger be withdrawn.

The rejection of Claim 25 under 35 U.S.C. § 103(a) as being unpatentable over Chari et al. (U.S. Pat. No. 4,278,905) in view of Everton (U.S. Pat. No. 5,670,838) is respectfully traversed.

Chari et al. is described above. Everton describes a stator assembly 3 comprising an armature winding having a series of angularly spaced and axially elongate teeth 9 interposed between adjacent windings 8, a back, or return path, member 10 forming a hollow cylinder around windings and teeth, and a pair of axially spaced sealing rings 11 and 12. The teeth 9 have, in radial cross section, a flared or divergent head portion 13 adjacent to back member 10 and a similarly divergent foot portion 14 adjacent the rotor assembly 4 (see FIG. 2). The head portions 13 of the teeth are very slightly spaced from the back member so as to create a magnetic back gap between them. (col. 4, lines 62-67; col. 5, lines 1-6). Further, Everton describes that the back gap is filled with resin to bond the teeth 9 to the back member 10 and the resin serves as a magnetic reluctance. (col. 5, lines 9-11).

Neither Chari et al. nor Everton, alone or in combination, describe or suggest the claimed combination. Specifically Claim 25 depends indirectly from Claim 18 which recites a dynamoelectric machine including "a housing; a stator comprising a bore therethrough mounted in said housing, said stator comprising a back iron and a plurality of non-magnetic teeth unitary with each other and a back portion, said back portion mounted to said back iron; a plurality of armature windings mounted on said teeth; and a rotor rotatably mounted in said bore, said rotor comprising a plurality of field windings". Neither Chari et al. nor Everton, alone or in combination, describe or suggest a dynamoelectric machine wherein the stator includes a back iron and a plurality of non-magnetic teeth unitary with each other and a back portion, the back portion mounted to the back iron. Rather, Chari et al. describe stator bars supported in an air-gap between a yoke and the rotor by a plurality of non-conductive, glass-reinforced-fiber, supporting teeth, each tooth having side walls, a mortise end and a tenon end, with the tenon end received in a slot in the yoke and anchored in place by a plurality of tapered wedges forming a dovetail joint, and Everton describes a stator assembly including an armature winding having a series of angularly spaced and axially elongate teeth interposed between adjacent windings, a back, or return path, member forming a hollow cylinder around

windings and teeth, and a pair of axially spaced sealing rings, the teeth that have, in radial cross section, a flared or divergent head portion adjacent to the back member and a similarly divergent foot portion adjacent to the rotor assembly, the head portions of the teeth are very slightly spaced from the back member so as to create a magnetic back gap between them, and the back gap is filled with resin to bond the teeth to the back member. For the reasons set forth above, Claim 18 is submitted to be patentable over Chari et al. in view of Everton.

Claim 25 depends indirectly from Claim 18. When the recitations of Claim 25 are considered in combination with the recitations of Claim 18, Applicants submit that dependent Claim 25 likewise is patentable over Chari et al. in view of Everton.

Applicants respectfully submit that the Section 103(a) rejection of the presently pending claim is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. In addition, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures nor any reasonable expectation of success has been shown.

The present Section 103(a) rejection is based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Chari et al. is cited for its teaching of stator bars supported in an air-gap between a yoke and the rotor by a plurality of non-conductive, glass-reinforced-fiber, supporting teeth, each tooth having side walls, a mortise end and a tenon end, with the tenon end received in a slot in the yoke and anchored in place by a plurality of tapered wedges forming a dovetail joint, and Everton is cited for its teaching of a stator assembly including an armature winding having a series of angularly spaced and axially elongate teeth interposed between adjacent windings, a back, or return path, member forming a hollow cylinder around windings and teeth, and a pair of axially spaced sealing rings, the teeth that have, in radial cross section, a flared or divergent head portion adjacent to the back member and a similarly divergent foot portion adjacent to the rotor assembly, the head portions of the teeth are very slightly spaced from the back member so as to create a magnetic back gap between them, and the back gap is filled with resin to bond the teeth to the back member. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103(a) rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103(a) rejection be withdrawn.

For the reasons set forth above, Applicants respectfully request that the Section 103(a) rejection of Claim 25 be withdrawn.

The objection to Claims 11, 17 and 27 is respectfully traversed.

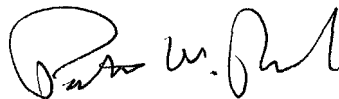
Claims 11, 17 and 27 were objected to as being dependent upon a rejected base claim, but were indicated as being allowable if rewritten in independent form. Claim 11 depends from independent Claim 7, which is submitted to be in condition for allowance. When the recitations of Claim 11 are considered in combination with the recitations of Claim 7, Applicants submit that dependent Claim 11 likewise is in condition for allowance. Claim 17 depends from independent Claim 12, which is submitted to be in condition for allowance. When the recitations of Claim 17 are considered in combination with the recitations of Claim

12, Applicants submit that dependent Claim 17 likewise is in condition for allowance. Claim 27 depends from independent Claim 18, which is submitted to be in condition for allowance. When the recitations of Claim 27 are considered in combination with the recitations of Claim 18, Applicants submit that dependent Claim 27 likewise is in condition for allowance.

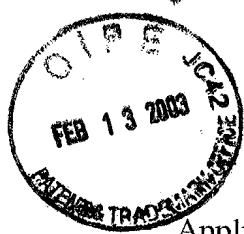
For the reasons set forth above, Applicants respectfully request that the objection to Claims 11, 17, and 27 be withdrawn.

In view of the foregoing remarks, this application is believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Raymond K.J. Ong et. al.

Serial No.: 09/681,253

Filed: March 8, 2001

For: STATOR, DYNAMOELECTRIC
MACHINE, AND METHODS
FOR FABRICATING SAME

Art Unit: 2834

Examiner: Waks, J.

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SUBMISSION OF MARKED UP CLAIMS

Hon. Commissioner for Patents
Box AF
Washington, D.C. 20231

Submitted herewith are marked up claims in accordance with 37 C.F.R.
1.121(c)(1)(ii).

IN THE CLAIMS

5. (canceled)

7. (twice amended) A method for fabricating a stator with non-magnetic teeth, the stator including a non-magnetic tooth back portion including a plurality of non-magnetic teeth and a back portion, the non-magnetic teeth unitary with each other and with the back portion, said method comprises the steps of:

fabricating a back iron; and

attaching [a non-magnetic tooth back portion comprising a plurality of non-magnetic teeth to the back iron] the non-magnetic tooth back portion to the back iron.

12. (once amended) A stator comprising:

a back iron; and

a plurality of non-magnetic teeth unitary with each other and with a back portion, said back portion mounted on said back iron.

18. (once amended) A dynamoelectric machine comprising:

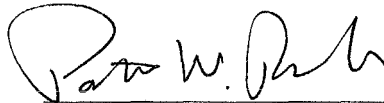
a housing;

a stator comprising a bore therethrough mounted in said housing, said stator comprising a back iron and a plurality of non-magnetic teeth unitary with each other and with a back portion, said back portion mounted to said back iron;

a plurality of armature windings mounted on said teeth; and

a rotor rotatably mounted in said bore, said rotor comprising a plurality of field windings.

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